

Abstract Submitted  
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**Experimental techniques to use the (d,n) reaction for spectroscopy of low-lying proton-resonances** SEAN KUVIN, INGO WIEDENHOFER, LAGY T. BABY, DANIEL SANTIAGO-GONZALEZ, JESSICA BAKER, Physics Department, Florida State University, GEORGIOS PERDIKAKIS, NSCL, Michigan State University, DENNIS GAY, Physics Department, University of North Florida, IMEH EBONG, Office of Research, University of North Florida — Studies of rp-process nucleosynthesis in stellar explosions show that establishing the lowest  $l=0$  and  $l=1$  resonances is the most important step to determine reaction rates in the astrophysical rp-process path. At the RESOLUT facility, we have used the (d,n) reaction to populate the lowest p- resonances in  $^{26}\text{Si}$ , and demonstrated the usefulness of this approach to populate the resonances of astrophysical interest [1]. In order to establish the (d,n) reaction as a standard technique for the spectroscopy of astrophysical resonances, we have developed a compact setup of low-energy Neutron-detectors, ResoNeut and tested it with the stable beam reaction  $^{12}\text{C}(d,n)^{13}\text{N}$  in inverse kinematics. Performance data from this test-experiment and future plans for this setup will be presented.

[1] P.N. Peplowski et al. Phys.Rev. 79, 032801 (2009)

Sean Kuvin  
Physics Department, Florida State University

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